CLAIMS:

1. A method comprising the steps of:

receiving an input signal;

generating a teletypewriter (TTY) indicator signal from the input signal;

determining that the input signal is a TTY signal comprising a TTY character, based on the TTY indicator signal; and

constructing a TTY packet including the TTY character of the TTY signal in response to determining that the input signal is a TTY signal.

2. A method according to claim 1, wherein the first bits of the TTY packet carry information and the remaining bits of the TTY packet are set to zero.

3. A method according to claim 2, wherein the first bits of the TTY packet comprise: a TTY header, a start bit, data bits, an end bit, a TTY character number, and a TTY character repetition number.

4. A method according to claim 1, further comprising the step of overwriting at least one speech packet with the TTY packet.

5. A method according to claim 1, wherein the step of determining comprises:

validating a start character bit of the TTY character;

validating at least one end character bit of the TTY character; and

validating a mark hold tone of the TTY character.

6. A method according to claim 1, wherein the step of generating a TTY indicator signal comprises:

filtering the input signal to generate a filtered input signal;

determining the local energies of the filtered input signal over portions of the filtered input signal; and

generating the TTY indicator signal on the basis of the local energies of the filtered input signal.

7. A method according to claim 6, wherein the step of filtering the input signal comprises filtering the input signal with a MARK bandpass filter.

8. A method according to claim 6, wherein the step of filtering the input signal comprises filtering the input signal with a SPACE bandpass filter.

9. A method according to claim 6, wherein the step of determining the local energies comprises the step of determining the local energies recursively, based on prior samples of the input signal.

10. A method according to claim 6, further comprising the step of median filtering the local energies of the filtered input signal.

11. A method comprising the steps of:

receiving a bitstream;

determining that a TTY character is present in the received bitstream;

validating the TTY character;

synthesizing a TTY signal from the TTY character; and

outputting the synthesized TTY signal if the TTY character is validated.

12. A method according to claim 11, wherein the step of synthesizing comprises elastically buffering TTY character bits of the TTY character.

13. A method according to claim 12, wherein the step of elastically buffering comprises:

receiving the TTY character bits in a first buffer until the first buffer is full;

transferring the TTY character bits from the first buffer to a second buffer if the second buffer is empty; and

synthesizing the TTY signal from the TTY character bits stored in the second buffer until the second buffer is empty.

14. A system comprising:

an input node configured to receive a communications signal; and

a signal encoder coupled to the input node and configured to:

generate a teletypewriter (TTY) indicator signal from the communications signal;

determine whether the communications signal is a TTY signal comprising a TTY character, based on the TTY indicator signal; and

construct a TTY packet including the TTY character of the TTY signal in response to determining that the communications signal is a TTY signal.

15. A system according to claim 14, wherein the first bits of the TTY packet carry information and the remaining bits of the TTY packet are set to zero.

16. A system according to claim 15, wherein the first bits of the TTY packet comprise: a TTY header, a start bit, data bits, an end bit, a TTY character number, and a TTY character repetition number.

17. A system according to claim 14, wherein the signal encoder is further configured to overwrite at least one speech packet with the TTY packet.

18. A system according to claim 14, wherein the signal encoder is further configured to:

validate a start character bit of the TTY character;

validate at least one end character bit of the TTY character; and

validate a mark hold tone of the TTY character.

19. A system according to claim 14, wherein the signal encoder is further configured to: filter the communication signal to generate a filtered signal;

determine the local energies of the filtered signal over portions of the filtered signal; and

generate the TTY indicator signal on the basis of the local energies of the filtered input signal.

20. A system according to claim 19, wherein the encoder comprises:

a MARK bandpass filter configured to filter the communications signal and generate the filtered signal.

21. A system according to claim 19, wherein the encoder comprises:

a SPACE bandpass filter configured to filter the communications signal and generate the filtered signal.

22. A system according to claim 14, further comprising a selector coupled to the encoder and configured to output the TTY packet if the encoder determines that the input signal is a TTY signal.

23. A system according to claim 19, wherein the signal encoder is further configured to determine the local energies recursively, based on prior samples of the input signal.

24. A system according to claim 19, wherein the signal encoder is further configured to median filter the local energies of the filtered input signal.

25. A system comprising:

a receiving node configured to receive a bitstream;

a signal decoder coupled to the receiving node and configured to:

determine that a TTY character is present in the received bitstream,

determine whether the TTY character is valid, and

synthesize a TTY signal from the TTY character; and

a selector coupled to the signal decoder and configured to output the synthesized TTY signal if the TTY character is valid.

26. A system according to claim 25, wherein the signal decoder is further configured to elastically buffer TTY character bits of the TTY character.

27. A system according to claim 26, wherein the signal decoder is further configured to:

receive the TTY character bits in a first buffer until the first buffer is full;

transfer the TTY character bits from the first buffer to a second buffer if the second buffer is empty; and

synthesize the TTY signal from the TTY character bits stored in the second buffer until the second buffer is empty.

28. A system comprising:

means for receiving an input signal;

means for generating a teletypewriter (TTY) indicator signal from the input signal;

means for determining that the input signal is a TTY signal comprising a TTY character, based on the TTY indicator signal; and

means for constructing a TTY packet including the TTY character of the TTY signal in response to determining that the input signal is a TTY signal.

29. A system according to claim 28, wherein the first bits of the TTY packet carry information and the remaining bits of the TTY packet are set to zero.

30. A system according to claim 29, wherein the first bits of the TTY packet comprise: a TTY header, a start bit, data bits, an end bit, a TTY character number, and a TTY character repetition number.

31. A system according to claim 28, further comprising means for overwriting at least one speech packet with the TTY packet.

32. A method according to claim 28, wherein the means for determining comprises:

means for validating a start character bit of the TTY character;

means for validating at least one end character bit of the TTY character; and

means for validating a mark hold tone of the TTY character.

33. A system according to claim 28, wherein the means for generating a TTY indicator signal comprises:

means for filtering the input signal to generate a filtered input signal;

means for determining the local energies of the filtered input signal over portions of the filtered input signal; and

means for generating the TTY indicator signal on the basis of the local energies of the filtered input signal.

34. A system according to claim 33, wherein the means for filtering the input signal comprises:

a MARK bandpass filter for filtering the input signal with a MARK bandpass filter.

35. A system according to claim 33, wherein the means for filtering the input signal comprises:

a SPACE bandpass filter for filtering the input signal.

36. A system according to claim 33, wherein the means for determining the local energies comprises means for determining the local energies recursively, based on prior samples of the input signal.

37. A system according to claim 33, further comprising means for median filtering the local energies of the filtered input signal.

38. A system comprising:

means for receiving a bitstream;

means for determining that a TTY character is present in the received bitstream;

means for validating the TTY character;

means for synthesizing a TTY signal from the TTY character; and

means for outputting the synthesized TTY signal if the TTY character is validated.

39. A system according to claim 38, wherein the means for synthesizing comprises means for elastically buffering TTY character bits of the TTY character.

40. A system according to claim 39, wherein the means for elastically buffering comprises:

means for receiving the TTY character bits in a first buffer until the first buffer is full;

means for transferring the TTY character bits from the first buffer to a second buffer if the second buffer is empty; and

means for synthesizing the TTY signal from the TTY character bits stored in the second buffer until the second buffer is empty.

41. A computer program product, comprising:

a computer storage medium and a computer program code mechanism embedded in the computer storage medium for encoding a communications signal, the computer program code mechanism comprising:

a first computer code device configured to generate a teletypewriter (TTY) indicator signal from an input signal;

a second computer code device configured to determine whether the input signal is a TTY signal comprising a TTY character, based on the TTY indicator signal; and

a third computer code device configured to construct a TTY packet including the TTY character of the TTY signal if the input signal is determined to be a TTY signal.

42. A computer program product according to claim 41, wherein the first bits of the TTY packet carry information and the remaining bits of the TTY packet are set to zero.

43. A computer program product according to claim 42, wherein the first bits of the TTY packet comprise: a TTY header, a start bit, data bits, an end bit, a TTY character number, and a TTY character repetition number.

44. A computer program product according to claim 41, further comprising a fourth computer code device configured to overwrite at least one speech packet with the TTY packet.

45. A computer program product according to claim 41, wherein the second computer code device comprises:

a fourth computer code device configured to validate a start character bit of the TTY character;

a fifth computer code device configured to validate at least one end character bit of the TTY character; and

a sixth computer code device configured to validate a mark hold tone of the TTY character.

46. A computer program product according to claim 41, wherein the first computer code device comprises:

a fourth computer code device configured to filter the input signal to generate a filtered input signal;

a fifth computer code device configured to determine the local energies of the filtered input signal over portions of the filtered input signal; and

a sixth computer code device configured to generate the TTY indicator signal on the basis of the local energies of the filtered input signal.

47. A computer program product according to claim 46, wherein the fourth computer code device comprises a MARK bandpass filter.

48. A computer program product according to claim 46, wherein the fourth computer code device comprises a SPACE bandpass filter.

49. A computer program product according to claim 46, wherein the fifth computer code device comprises a seventh computer code device configured to determine the local energies recursively, based on prior samples of the input signal.

50. A computer program product according to claim 46, further comprising a seventh computer code device configured to median filter the local energies of the filtered input signal.

51. A computer program product, comprising:

a computer storage medium and a computer program code mechanism embedded in the computer storage medium for encoding a communications signal, the computer program code mechanism comprising:

a first computer code device configured to receive a bitstream;

a second computer code device configured to determine that a TTY character is present in the received bitstream;

a third computer code device configured to validate the TTY character; and

a fourth computer code device configured to synthesize a TTY signal from the TTY character;

a fifth computer code device configured to output the synthesized TTY signal if the TTY character is validated.

52. A computer program product according to claim 51, wherein the fourth computer code device comprises a sixth computer code device configured to elastically buffer TTY character bits of the TTY character.

53. A computer program product according to claim 52, wherein the sixth computer code device comprises:

a seventh computer code device configured to receive the TTY character bits in a first buffer until the first buffer is full;

a eighth computer code device configured to transfer the TTY character bits from the first buffer to a second buffer if the second buffer is empty; and

a ninth computer code device configured to synthesize the TTY signal from the TTY character bits stored in the second buffer until the second buffer is empty.